ABSTRACT

A linear lesion ablation catheter includes a conductive ablating portion having a predetermined resistivity profile for ablating tissue in a generally even temperature profile. In one embodiment, the conductive ablating portion is disposed on a distal portion of an elongate flexible member and has a resistance that increases exponentially along its length from a center of the ablating portion to a non-infinite value at opposite ends of the ablating portion. The ablating portion is adapted to produce a generally even temperature profile along a length of its surface when the ablating portion is in contact with a target tissue within a patient's body. In one example, the conductive ablating portion comprises a plurality of electrically connected conductive regions which extend from the center to the opposite ends of the ablating portion. Each of the conductive regions has a resistance value wherein the resistance values increase from section to section in successive orders of magnitude from the center of the ablating portion to the opposite ends of the ablating portion exponentially up to a non-infinite value. This predetermined resistivity profile produces linear lesions on target tissue without the resulting "edge effects" or "hot spots" at the ends of the electrode common in prior art linear lesion ablation catheters.